The Use of C. elegans as an Indicator for Toxins in Feminine Hygiene Products

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Regarding feminine hygiene products, the “FDA recommends that tampons be free of harmful chemicals and any pesticide and herbicide residues,” (2018) with no specific regulations that companies must follow in their production of products. Using Caenorhabditis elegans, we tested a variety of well-known tampons to determine if the chemicals and materials used caused distressed behaviors in the organisms. To address the question, we purchased a C. elegans Growth Kit from Carolina Biological and transferred the nematodes to separate petri dishes. We were then able to introduce materials from tampons into the environment of the petri dishes and observe behavioral and population changes of the C. elegans under the microscope. From the observed results, behavioral changes were found within the experimental groups, with a common aversion to the product and a rigid, jerking, slither opposed to the smooth and healthy movement of the control sample nematodes. Along with behavioral changes, we used a one-tailed independent t-test to analyze population trends of the experimental plates in comparison to the control plates, and we received p-values > 0.0005 for all types tested. From our results, we concluded that our data was statistically significant, and our null hypothesis can be rejected in favor of the alternative hypothesis, that toxins in tampons cause distressed behaviors in the nematodes. Our found results can be applied to the tissues found within the human body and may be beneficial in future testing of feminine hygiene products.